

**2016 ANNUAL REPORT
AUTOMATED TRAFFIC ENFORCEMENT ON
PRIMARY HIGHWAYS IN DES MOINES**



2016 ANNUAL REPORT

AUTOMATED TRAFFIC ENFORCEMENT ON PRIMARY HIGHWAYS IN DES MOINES

TABLE OF CONTENTS

1.	Red Light Violation Statistics	Page 1-2
2.	Crash Statistics	Page 3-4
3.	Types of Crashes – E15th/Maple	Page 5-6
4.	Types of Crashes – MLK/School	Page 7-8
5.	Types of Crashes – I-235	Page 9-10
6.	Appendix A – I-235 Crash Causation (by percentage)	
7.	Appendix B – I-235 Crash Causation (by numbers)	
8.	Evaluation and Impact	Page 11
9.	Citations issued by year	Page 12

Des Moines Police Department

2016 ANNUAL REPORT

AUTOMATED TRAFFIC ENFORCEMENT ON PRIMARY HIGHWAYS IN DES MOINES

Address the impact of automated traffic enforcement (ATE) technology on reducing speeds and/or number of red light violations at sites being monitored.

Red light violations since July, 2011:

Red Light Locations	2011 (July-Dec)	2012	2013	2014	2015	2016
E 15 th & Maple	950	1054	493	456	981	1609
MLK & School	1633	5040	6146	5687	6006	7627

**Data provided from Gatso Inc., and are based on Citations Resulted from Captured Violations by Approach.*

Intersections originally selected for ATE camera enforcement based upon:

- High incidence of crashes at both intersections
 - The crash data were taken from DOT's 2005-2009 Statewide Intersection Safety Improvement Candidate Location List.
 - These two intersections were redesigned by the Iowa Department of Transportation. This took place prior to implementation of the ATE cameras.

East 15th & Maple

- The ATE at this intersection has been effective at reducing the number of violators in 2013 and 2014, however a spike is noticed from 2014 to 2016 with citations and crashes.
- The goal is a continued reduction in red light violations and crashes at this intersection. The continued reduction of crashes and violations vs. high traffic volume indicates cameras have been effective. The spike in violations and crashes in 2015 plus the increase in 2016 shows the need to continue enforcement at this intersection.
- This ATE camera captures traffic travelling northbound through the intersection and also includes motorists who are making a left turn (westbound) onto Maple.
 - Left turns contribute to the number of violations at this location.
 - There are instances where motorists frequently do not stop at this intersection prior to making a left turn. This intersection is also an off-ramp from I-235.
- Motorists must be traveling at 11 mph or above during the left turn to initiate a violation by the ATE camera at this location.
- A report dated 03-17-15, from the Department of Transportation provided findings and evaluation of this intersection. The resulting action was to continue operation of an ATE camera at this location.

MLK & School

- Red light violations continue to be problematic. In coordination with the DOT, the visibility of the signage was increased in 2015, in an effort to reduce the number of red light violations and crashes at this intersection.
- This ATE camera captures traffic travelling eastbound through the intersection and also includes motorists who are making a right turn (southbound) onto Martin Luther King Jr. Roadway.
 - Right turns contribute to the number of violations at this location.
 - Limited sight distance is a concern due to bridge overpass obstruction.
 - There are instances in which motorists frequently do not stop at this intersection prior to making a right turn.
 - Motorists must be travel at 11 mph or above during the right turn to initiate a violation by the ATE camera at this location.
- The number of violations at this intersection indicates the need for continued enforcement at this location.
- The goal is to reduce red light violations and crashes at this intersection.
- A report dated 03-17-15, from the Department of Transportation provided findings and evaluation of this intersection. The resulting action was to continue operation of an ATE camera at this location.

Identify the number and type of collisions at the sites being monitored, listing comparison data for before-and-after years. If the system includes intersection enforcement, only the monitored approaches should be included in the evaluation.

The table below represents the total number of crashes per year at:

- E 15th and Maple (NB),
- MLK & School St (EB)
- I-235 EB between 4200 block and 4700 block (5.5 to 4.8 mile marker).

Crashes

Location	2009	2010	2011 Before ATE	2011 After ATE	2012	2013	2014	2015	2016
E 15 th & Maple St. (NB)	16	10	4	5	5	6	1	10	13
MLK & School St. (EB)	16	12	4	6	6	10	8	11	13
I-235 / 4200-4700 Block (EB)	5	9	2	2	3	6	2	10	9

**2015 DOT crash data were unavailable at the time of this report. The data reflects crash data recorded by DMPD and the City of Des Moines.*

- The data represent the total number of crashes at these intersections for periods before ATE's and periods following ATE implementation.
- The crash data in 2011 is divided as a result of ATE implementation.
 - E 15th & Maple and MLK & School
 - The number of crashes in "2011 before cameras" (January through June).
 - The number of crashes in "2011 after cameras" (July to December).
 - On I-235 between the 4700 and 4200 block (4.8 and 5.5 mile marker)
 - The number of crashes in "2011 before cameras" (January to September).
 - The number of crashes in "2011 after cameras" (October to December 2011).
- When reviewing the data, it is important to note the reduction of crashes at **E 15th and Maple (NB)** after the implementation of the ATE cameras. In 2015, a spike in crashes is noted. Again, the number of crashes increase, by two, from 2015 to 2016 a total of 13.
- The number of crashes at **MLK and School St (EB)** decreased, as well, after the implementation of cameras. Again, 2015/2016 shows an increase in crashes and red light violations.
 - Measured improvement in 2014 with a reduction to 8, from 10 in 2013.
 - In 2015 and 2016 the number of crashes are on the rise to 11 and 13 respectively, at the **MLK/School** intersection, indicating a continued need for enforcement.
- According to DOT data, the highest volume of traffic on Iowa's roadways is on I-235 in Des Moines between 56th and 42nd Street. This location is where the I-235 ATE cameras are utilized.
- DOT only estimates daily average daily traffic on I-235 every two years. These calculations are for both directions of I-235. The traffic count for 2016 are not available at the time of this report.
 - According to the DOT data, the average daily traffic on I-235 in 2012 was 82,900 vehicles per day, which calculates to approximately 30,258,500 vehicles per year.

- According to the DOT data, the average daily traffic on I-235 in 2014 was 90,000 vehicles per day, calculating to approximately 32,850,000 vehicles per year. This average is *both eastbound and westbound traffic*.
- **This represents an increase of 2,591,500 cars or 8.5%**
- For 2016, GATSO provided a total number of passes through the eastbound fixed cameras on I-235. This number is higher than the estimation of the DOT. The yearly total of **vehicles travelling EB I-235 is 23,667,375.**
- **Top speed captured on I-235 EB was 107mph.**
- Zero Passes – 2,938,412 (*Vehicles which speed/citations were unattainable. These are due to rejections for numerous reasons including but not limited to; inability to read the plate, changing lanes, plates not on file, semi-trailer plates, emergency vehicles running emergency.*)
- Recorded speeds – The speed limit at the fixed camera of EB I-235 is 60 mph. The City of Des Moines does not issue a civil citation until 11mph over the speed limit.
 - **1-60 mph 11,796,064 (Not speeding)**
 - **61-70 mph – 8,827,964 (Speeding but no citation issued)**
 - **71 mph (or faster) – 104,935 (Sent for review by an Officer)**
- *Of 104,935 citations, 60,826 citation were issued and mailed to the registered owner. 42% of the citations were not issued for reasons similar to that of the “zero passes” mentioned above. Of 23,667,375 passing vehicles, on four lanes of I-235, 60,826 citations were issued. This calculates to LESS THAN ½ of (1) ONE PERCENT (.0025) of all eastbound vehicles receiving a citation by automated traffic enforcement.*
- Breakdown of speeding citations by lane
 - Lane 1 – (Fast Lane) – 40,362 = 66% of all citations
 - Lane 2 - 10824 = 18 %
 - Lane 3 - 6284 = 10%
 - Lane 4 – (Slow Lane) 3356 = 6%
- **The cameras are functioning as intended. They identify the most aggressive drivers with the intent to change behavior; slow or calm traffic.**

○ **AVERAGE NUMBER OF CRASHES**

Location	Average number of crashes before ATE 2009-2011	Average number of crashes after ATE 2011-2016
E 15 th & Maple	12	7.2
MLK & School	12.8	9.8
I-235 EB between the 4200-4700 block (EB)	6.4	5.8

- The average number of crashes after ATE cameras has decreased significantly at each of these three locations.
 - **40% reduction in crashes on E15th / Maple.**
 - **23% reduction in crashes on MLK / School.**
 - **9% reduction in crashes on I-235.**

TYPES OF CRASHES - E 15th & Maple St

Year	Number of Crashes	Crash Types	Red Light Violations Issued
2009	16	12 Ran Light / Broadside 1 Rear End 1 Sideswipe 2 Unk/Other	N/A
2010	10	5 Ran Light / Broadside 3 Rear End 2 Sideswipe 0 Unk/Other	N/A
2011* Before Camera	4	2 Ran Light / Broadside 1 Rear End 1 Sideswipe 0 Unk/Other	N/A
2011* After Camera	5	3 Ran Light / Broadside 0 Rear End 0 Sideswipe 2 Unk/Other	950
2012	5	2 Ran Light / Broadside 2 Rear End 0 Sideswipe 1 Unk/Other	1054
2013	6	4 Ran Light / Broadside 1 Rear End 1 Sideswipe 0 Unk/Other	493
2014	1	1 Ran Light / Broadside 0 Rear End 0 Sideswipe 0 Unk/Other	456
2015	10	2 Ran Light / Broadside 6 Rear End 2 Sideswipe 0 Unk/Other	981
2016	13	7 Ran Light / Broadside 2 Rear End 3 Sideswipe 1 Unk/Other	1609

*2015 DOT crash data were unavailable at the time of this report. The data reflects crash data recorded by DMPD and the City of Des Moines.

- The statistical number of crashes caused by traffic violations has decreased by **40%** since the implementation of red light cameras at E 15th and Maple St.
- The increase of crashes from 2014 to 2015 can be attributed to an increase in red light violations.

Case Number	Date	Time	Description
16-868	1/9/2016	1419	NB RAN LIGHT VS WB
16-4081	2/10/2016	1400	WB LOST CONTROL VS NB, SLUSHY
16-6863	3/8/2016	0943	NB RAN LIGHT VS WB
16-7225	3/11/2016	1659	NB LEFT TURN VS NB SIDESWIPE
16-19582	6/30/2016	1857	NB RAN LIGHT VS WB
16-22922	7/30/2016	1035	NB ROLLED THROUGH LIGHT VS WB, DISTRACTED
16-28680	9/15/2016	2259	NB IMPROPER LEFT RUN VS NB
16-30937	10/3/2016	1720	NB VS NB REAR END HR
16-31831	10/11/2016	1238	NB LEFT TURN FTY TO PEDESTRIAN
16-32663	10/18/2016	1353	NB RAN LIGHT VS WB
16-35525	11/12/2016	1115	WB RAN LIGHT VS NB
16-36030	11/16/2016	2127	NB SIDESWIPE VS NB, LOST CONTROL
16-37557	12/1/2016	0900	NB VS NB VS NB REAR END

At Fault – Running the Light

Westbound vs Northbound = 2
 Northbound vs Westbound = 5

At Fault – Rear End

Northbound vs Northbound = 2

At Fault – Sideswipes

Northbound vs Northbound = 2
 Hit and Run = 1

FTY to Pedestrian

Northbound turning westbound = 1

TYPES OF CRASHES - Martin Luther King & School St

Year	Number of Crashes	Crash Types	Red Light Violations Issued
2009	16	10 Ran Light / Broadside 1 Rear End 1 Sideswipe 4 Unk/Other	N/A
2010	12	9 Ran Light / Broadside 0 Rear End 0 Sideswipe 3 Unk/Other	N/A
2011* Before Camera	4	3 Ran Light / Broadside 0 Rear End 1 Sideswipe 0 Unk/Other	N/A
2011* After Camera	6	5 Ran Light / Broadside 1 Rear End 0 Sideswipe 0 Unk/Other	1633
2012	6	2 Ran Light / Broadside 2 Rear End 1 Sideswipe 1 Unk/Other	5040
2013	10	8 Ran Light / Broadside 0 Rear End 2 Sideswipe 0 Unk/Other	6146
2014	8	6 Ran Light / Broadside 1 Rear End 1 Sideswipe 0 Unk/Other	5687
2015	11	6 Ran Light / Broadside 3 Rear End 2 Sideswipe 0 Unk/Other	6006
2016	13	9 Ran Light / Broadside 1 Rear End 3 Sideswipe 0 Unk/Other	7627

*2015 DOT crash data were unavailable at the time of this report. The data reflects crash data recorded by DMPD and the City of Des Moines.

- The statistical number of crashes caused by traffic violations decreased by **23%** after the implementation of ATE cameras at Martin Luther King Jr. and School St.
- The number of crashes and violations increased in 2013, but decreased in 2014. An increase in crashes was noticed in 2015 and 2016, which may be attributed to an increase in red light violations.
- A reduction of crashes, from 2013 to 2014, can be attributed to a reduction in red light violations. The amount of violations at this location, indicates the need for continued enforcement, at this location.
- The Des Moines Police Department and DOT enhanced visibility by adding additional signage in 2015, in an effort to decrease the number of red light violations and crashes at this intersection.

Case Number	Date	Time	Description
16-1587	1/16/2016	1615	SB RAN LIGHT VS EB
16-6999	3/9/2016	1332	SB IMPROPER LEFT TURN VS SB SIDESWIPE
16-12902	5/4/2016	710	EB IMPROPER TURN VS EB SIDESWIPE
16-14047	5/14/2016	1602	SB RAN LIGHT VS EB
16-14796	5/21/2016	1521	SB RAN LIGHT VS EB
16-16761	6/7/2016	2054	SB RAN LIGHT VS EB
16-18349	6/20/2016	1710	EB RAN LIGHT VS SB
16-27729	9/7/2016	1900	SB RAN LIGHT VS EB
16-31827	10/11/16	1143	EB VS EB REAR END
16-32394	10/16/16	1250	EB VS EB SIDESWIPE
16-33596	10/26/16	1459	SB RAN LIGHT VS EB
16-34359	11/1/16	2028	SB VS EB (UNKNOWN
16-40595	12/19/16	1000	SB RAN LIGHT VS EB

At Fault – Running the Light

Southbound vs Eastbound = 7

Eastbound vs Southbound = 1

SB vs EB = Unknown fault = 1

At Fault - Rear End

Eastbound vs Eastbound = 1

At Fault – Sideswipe

Eastbound vs Eastbound = 2

Southbound vs Southbound = 1

TYPES OF CRASHES – I-235 (4700 block to 4200 block EB)

Year	Number of Crashes	Crash Types	Speed Violations Issued
2009	5	2 Lost Control 2 Rear End 1 Sideswipe 0 Unk/Other	N/A
2010	9	2 Lost Control 4 Rear End 3 Sideswipe 0 Unk/Other	N/A
2011* Before Camera	2	0 Lost Control 2 Rear End 0 Sideswipe 0 Unk/Other	N/A
2011* After Camera	2	1 Lost Control 0 Rear End 1 Sideswipe 0 Unk/Other	19486
2012	3	2 Lost Control 0 Rear End 1 Sideswipe 0 Unk/Other	36202
2013	6	3 Lost Control (One Fatality) 0 Rear End 1 Sideswipe 2 Unk/Other/1 Debris/1 Vehicle Malfunction	42156
2014	2	0 Lost Control 1 Rear End 1 Sideswipe 0 Unk/Other	44602
2015	10	1 Lost Control 3 Rear End 6 Sideswipe 0 Unk/Other/1 Debris	55384
2016	9	1 Lost Control Lane 1 (Fast Lane) 40362 5 Rear End Lane 2 10824 2 Sideswipe Lane 3 6284 1 Unk/Other/Medical Lane 4 (slow lane) 3356	60826

*2015 DOT crash data were unavailable at the time of this report. The data reflects crash data recorded by DMPD and the City of Des Moines.

- The statistical number of crashes caused by traffic violations on I-235 (4700 block to 4200 block) have decreased by 9% since the implementation of our ATE camera program.
- Crashes still remain a concern for this location.
 - **Roadway characteristics are the primary reason why the ATE were chosen for this location on I-235.**
 - The roadway in this area narrows, particularly the left shoulder, nearest the median barrier, as the roadway begins a series of curves.
 - These conditions create a safety concern for traditional traffic enforcement.
 - Crash data supports the need for continued ATE camera enforcement in this particular high-risk, high traffic flow location.
 - A spike in crashes is noted for I-235. Speed remains a concern as speed citations issued increased significantly in 2015.

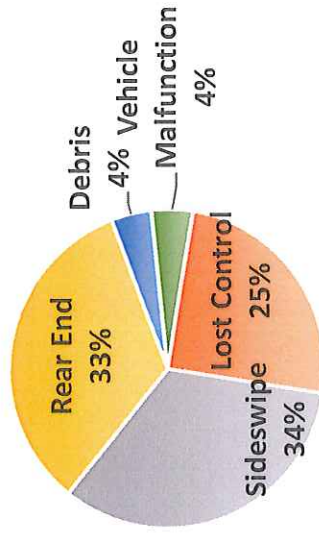
<i>Case Number</i>	<i>Date</i>	<i>Time</i>	<i>Description</i>
16-2012	1/21/16	0818	Single MV -Lost control (Ice) into barrier
16-2870	1/30/16	0029	MV-MV H&R - Rear end
16-10336	4/11/16	1230	Single MV – lost control into barrier - medical
16-10628	4/14/16	1013	MV-MV- Sideswipe
16-13194	5/6/16	1530	MV-MV Rear end - merging
16-15042	5/23/16	1748	MV-MV - Rear end- stopped traffic
16-15093	5/24/16	0858	MV-MV – Rear end – changing lanes
16-29052	9/19/16	0300	MV-MV-Sideswipe-speed
16-29185	9/20/16	0753	MV-MV – rear end – slowing traffic

At Fault - Rear End = 5

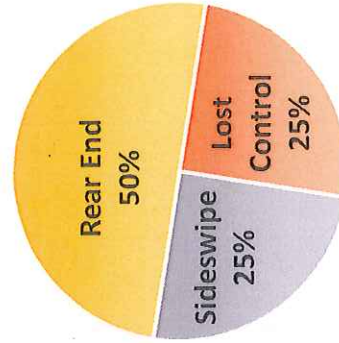
At Fault - Sideswipes = 2

At Fault - Lost Control = 2

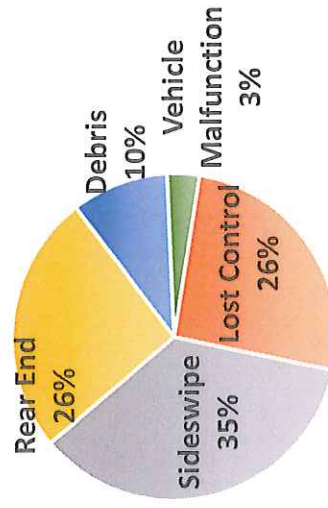
Causation of Crashes I-235 4200/4700 Block (5.5 to 4.8 MM) EB 2009-2016

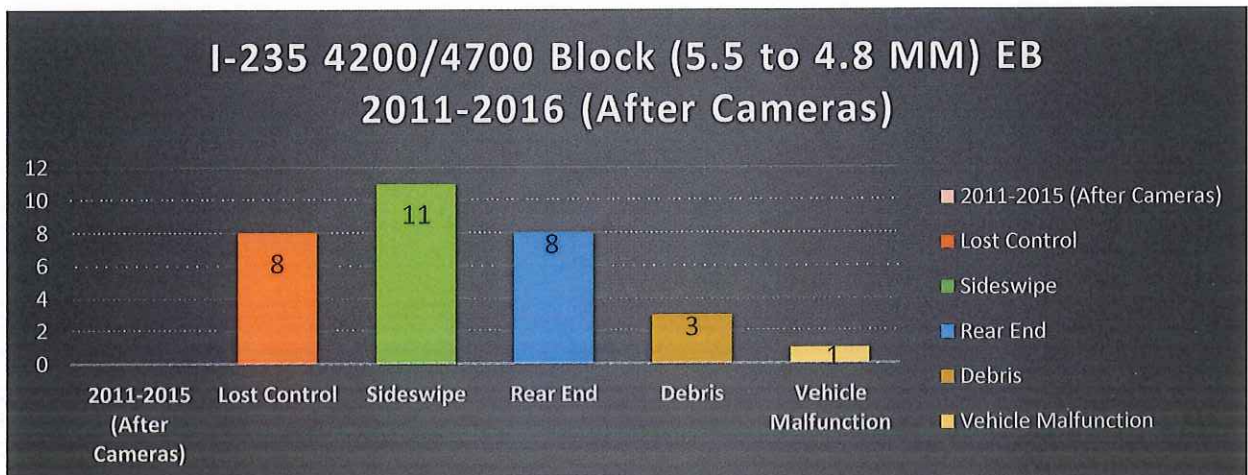
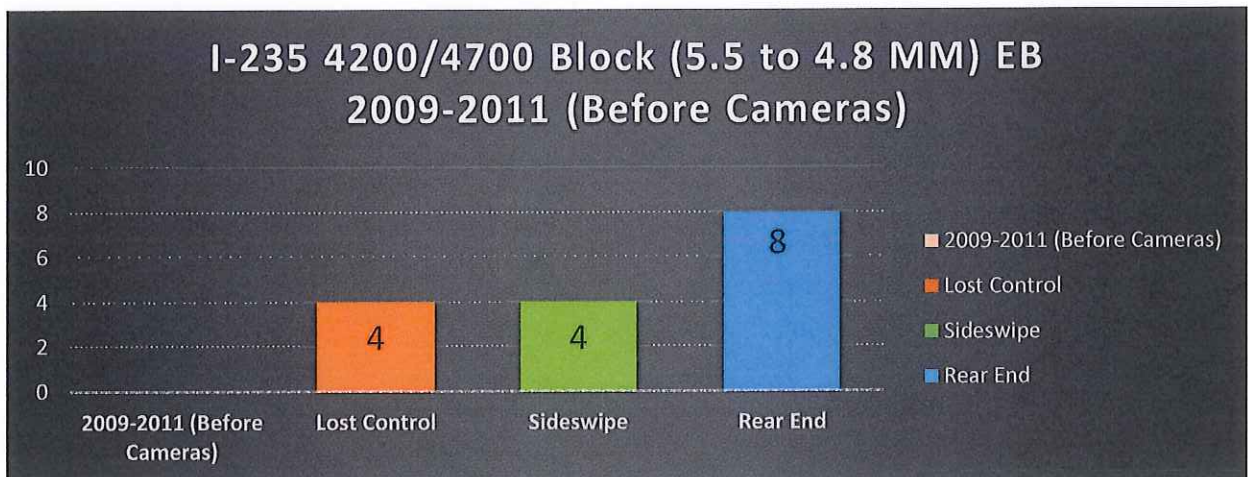
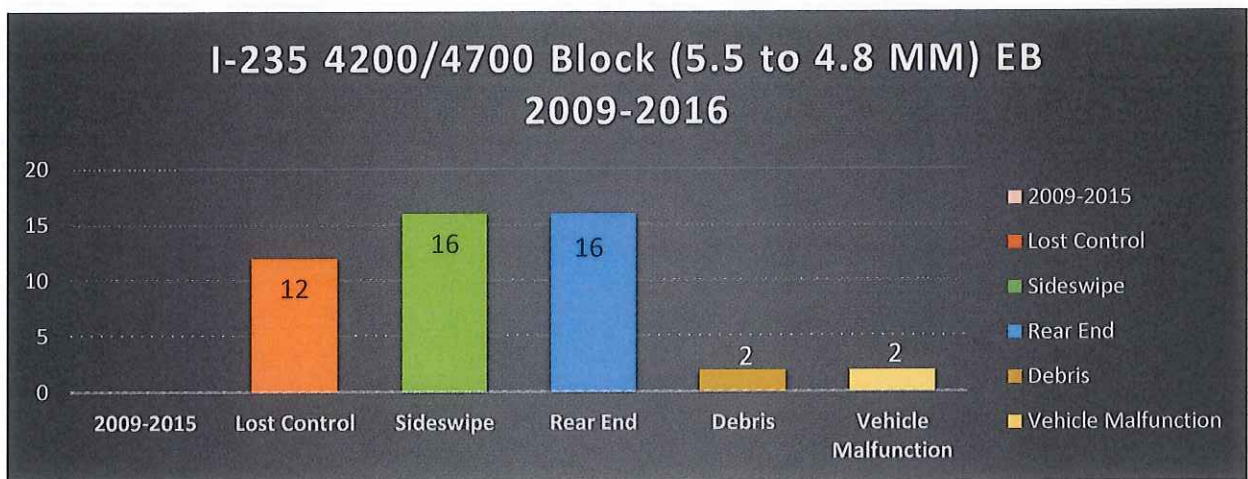


Causation of Crashes I-235 4200/4700 Block (5.5 to 4.8 MM) EB 2009-2011 (Before ATE Cameras)



Causation of Crashes I-235 4200/4700 Block (5.5 to 4.8 MM) EB 2011-2016 (After ATE Cameras)





Evaluate and document the automated traffic enforcement system's impact on addressing the critical traffic safety issue(s) listed in the justification report if a justification report was part of the system's initial approval process.

- The intersections (MLK and School St., and E 15th and Maple) chosen for ATE cameras were selected based on numbers of high, right angle / broadside crashes.
- The 2005-2009 Statewide Intersection Safety Improvement Candidate Location List, identified the frequency rank of Martin Luther King and School St was #1 and E 15th and Maple St was #2.
- Using this same report for the years 2008-2012 (a portion of which was after the implementation of our camera program in July 2011, as was all of 2012), the frequency rank at the ML King and School location dropped to #2 and the E 15th and Maple location dropped to #10.
- The 2009-2013 Statewide Intersection Safety Improvement Candidate Location List, provided by the DOT, currently shows a continued decline as MLK and School dropped to a ranking of #5 and E15th and Maple ranking dropped to #23.
- The frequency ranking takes into account the severity and frequency of crashes and crash types.
 - The attributes that were considered were volume of traffic, controlled intersection, construction standards and future plans for intersection reconfiguration.
- The frequency ranking at these two intersections continue to reduce in recent years.
- High risk locations are those where the safety of citizens or law enforcement officers would be at higher risk through conventional traffic enforcement methods.
- As previously stated, the ATE cameras affixed on I-235 are a safer alternative than traditional traffic enforcement.
 - The roadway in this area narrows particularly the left shoulder, nearest the median barrier, as the roadway begins a series of curves.
 - This makes traditional speed enforcement hazardous for police officers and the motoring public at this location.
- Due to the high-risk characteristics that impact safe traditional traffic enforcement at this location, the I-235 ATE cameras are an effective tool to our enforcement efforts.
- There were 55,484 speed citations issued in 2015, which demonstrates the continued need for ATE camera enforcement in an effort to slow traffic and enhance motorist safety.
- **The ATE cameras provide the Des Moines Police Department with an option to enforce speed at this location, through technology, without endangering the lives of citizens or law enforcement officers.**

Provide the total number of citations issued for each calendar year the system has been in operation.

Citations Issued	2011	2012	2013	2014	2015	2016
Red Light Intersections	2583 (July 2 – Dec 31)	6094	6639	6143	6987	9236
I-235 4700 block Speed	19486 (Sep 27– Dec 31)	36202	42156	44602	55384	60826

Data provided from Gatso Inc., and include the Issued Citations by Approach.

Mobile Speed Camera:

- **The mobile ATE unit does not deploy to primary highways within the City of Des Moines, in compliance with the Iowa DOT guidelines, which were established in June, 2012.**

Certify that the calibration requirements of sub-rule 144.6 (4) have been met.

- The yearly speed calibration verification (of each lane of I-235) was conducted on **27 June 16** by GATSO USA.
- DOT calibration requirement is *quarterly*.
- DMPD calibration verification were conducted:
 - January 6, 2016
 - February 1, 2016
 - March 7, 2016
 - April 12, 2016
 - May 2016 – not done - Investigated 5 Serious/Fatal accident investigations.
 - June 1, 2016
 - July 20, 2016
 - August 2016 – not done - Investigated 5 Serious/Fatal accident investigations.
 - September 8, 2016
 - October 6, 2016
 - November – not done - Homicides of Des Moines / Urbandale Officers
 - December 14, 2016
 - January 2017 – not done -Scheduling conflict
 - February 1, 2017
 - March 13, 2017
- DMPD Police Traffic units, conducting calibrated tests, are outfitted with a speed sensor.